CLAIMS

1. A sensor for detecting information and outputting light according to the information, the sensor wherein it comprises:

a micro-optical cavity for changing a degree of selection of a photoelectromagnetic field mode according to an environmental condition of the cavity; and

an active layer in which light emission is limited by influence of the selection of a photoelectromagnetic field mode,

wherein the light emission is changed according to a change in the environmental condition.

2. The sensor according to claim 1, wherein the sensor is disposed in a channel for flowing a fluid or near the channel.

3. The sensor according to claim 2, wherein the environmental condition is changed according to a solution flowing in the channel or a dissolved substance or solvent of the solution.

4. The sensor according to claim 3, wherein the channel is a microchannel having a dimension of 10 μm or more and a solution flowing in the channel forms a

laminar flow on a predetermined position.

5. The sensor according to claim 3, wherein the environmental condition is selected from the group consisting of a change in refractive index, light absorption, light scattering, a temperature change, and slight deformation of the sensor.

6. The sensor according to claim 5, wherein the change in refractive index depends upon a concentration of the solvent.

7. The sensor according to claim 5, wherein the change in refractive index depends upon a temperature of the solution.

8. The sensor according to claim 5, wherein the light adsorption depends upon a concentration of the dissolved substance.

9. The sensor according to claim 5, wherein the light scattering depends upon a concentration of the dissolved substance.

10. The sensor according to claim 5, wherein the temperature change is caused by heat generated by a chemical reaction of the solution and/or the

dissolved substance.

11. The sensor according to claim 5, wherein the slight deformation of the sensor appears due to vibration caused by expansion and shrinkage resulting from a collision of the dissolved substance or a chemical reaction of a substance in the solution.

12. The sensor according to claim 5, wherein the slight deformation of the sensor appears due to a pressure change caused by expansion and shrinkage resulting from a change in a flow rate of the solution or a chemical reaction of a substance in the solution.

13. The sensor according to claim 1, wherein a surrounding part of the micro-optical cavity in the sensor is modified by an antigen or an antibody.

14. The sensor according to claim 1, further comprising a probe for generating mechanical deformation on the micro-optical cavity.

15. The sensor according to claim 1, further comprising a metal thin film between the micro-optical cavity and a detected substance.

16. A sensor array comprising the sensors of claim 1 arranged juxtapositionally in one- or two-dimensional array and outputting a signal of juxtapositional lights outputted from the sensors according to a plurality of environment information corresponding to positions of the sensors.

17. A method for acquiring sensor information, wherein the sensor array of claim 16 is used and the signal of juxtapositional lights from the sensor array is detected by an area sensor.

18. A sensor using a microcavity laser, wherein one of two supporting substances capable of making specific binding with a substance to be detected is supported on a peripheral portion of the micro-optical cavity, and a specific binding state of the substance to be detected with the supporting substance is detected based on information about laser oscillation state of detected laser.

19. A sensor system, wherein the sensors of claim 18 are juxtabpositionally arranged on a common substrate and plural kinds of substances to be detected are juxtapositionally detected by using a plurality of microcavity lasers juxtapositionally arranged.

20. The sensor according to claim 18, wherein a kind of a substance to be detected is detected according to a change in a laser oscillation mode of the microcavity a peripheral portion of which supports plural kinds of the supporting substance, the supporting substances corresponding to plural kinds of the substance to be detected.

21. A sensor comprising a micro-optical cavity of a microcavity laser and a probe for generating mechanical deformation on the micro-optical cavity,

wherein a state of the mechanical deformation is detected by measuring a change in laser oscillation state, the change being caused by deformation of the micro-optical cavity through the probe.

22. The sensor according to claim 21, wherein the probe supports one of two supporting substances capable of making specific binding with the substance to be detected, and modulation of mechanical deformation of the micro-optical cavity through the probe is detected from a change in the laser oscillation state, which change is based on a resistance against ambient fluid and/or a change in weight of the probe by the specific binding.